

74 are extensive — in fact, much more extensive than the traceback calculations 72 shown in Fig. 6A — the total time is reduced.

Fig. 6C shows an embodiment in which the readout steps are done in parallel with the processing steps for the next block of symbols. This further speeds up the operation of the Viterbi algorithm. The readout operation can operate on a previous optimal path value memory while the current optimal path value memory is accessed by the optimal path value update operation.

~~Figs. 16A and 16B show a "ping-pong" memory that can be used with the system of Fig. 6C. In Fig. 16A, memory 140 is used in the optimal path value update for symbol block A. Looking at Fig. 16B, after the optimal path value for symbol block B is completely loaded into memory 140', the function of memories 140' and 142' flip. Memory 140' is used for the readback and memory 142' is used for optimal path value update.~~

Fig. 7 illustrates one embodiment of the present invention wherein the optimal path memory is broken into a number of smaller memory blocks. The breaking of the memory into a number of smaller memory blocks allows the processing to be done on smaller sized optimal path value fragments, rather than the entire optimal path value. In this embodiment, the updated optimal path fragments are written into a memory block. For example, in one embodiment, the memory block 82 is written into first. When the memory block 82 is filled with data, the next memory block 84 is written into. This is done until memory block 86 is written into, such that all optimal path data for the entire block of transmitted symbols is stored. The current block pointer 90 tells which of the memory blocks to write the updated path value fragments into, and from which memory block to obtain the optimal path fragments of the prior states. Note that in a preferred embodiment, the optimal path value fragment stored in each of the filled memory blocks is not later modified. In this preferred embodiment, the system produces a pointer to the address in the previous memory block of the next fragment of the optimal path for a state. Once a memory block is filled, that fragment of the

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